genetically or physiologically manipulating eukaryotic cells comprising said partially homologous DNA sequences to render defective the enzymatic mismatch repair system of said eukaryotic cells, and

culturing said manipulated eukaryotic cells under conditions to effect meiotic recombination *in vivo* of said partially homologous DNA sequences.

13. (Amended) The process according to claim 11, wherein said eukaryotic cells comprising said partially homologous DNA sequences are obtained by mixing (a) a first group of eukaryotic cells comprising a first DNA sequence with (b) a second group of eukaryotic cells comprising a second DNA sequence which is partially homologous to said first DNA sequence and which has up to 30% base mismatches with said first DNA sequence, to form diploids.

16. (Amended) The process according to claim 11, wherein said enzymatic mismatch repair system of said eukaryotic cells are rendered defective by genetically or physiologically manipulating said eukaryotic cells to delete or make defective at least one eukaryotic homologue of *mutS* protein and/or at least one eukaryotic homologue of *mutL* protein.

17. (Amended) The process according to claim 16, wherein said enzymatic mismatch repair system of said eukaryotic cells are rendered defective by genetically or physiologically manipulating said eukaryotic cells to delete or make defective at least one eukaryotic homologue of *mutS* protein.

18. (Amended) The process according to claim 11, wherein said enzymatic mismatch repair system of said eukaryotic cells are rendered defective by genetically or physiologically manipulated said eukaryotic cells to delete or make defective *MLH* genes, said eukaryotic cells being derived from yeast.

22. (Amended) A process of making eukaryotic cells of a hybrid eukaryotic specie, said process comprising:

mixing (a) a first group of eukaryotic cells (i) comprising a first DNA sequence and (ii) having a defective enzymatic mismatch repair system which is made defective by genetic or physiological manipulation, with (b) a second group of eukaryotic cells (i) comprising a second DNA sequence which is partially homologous to said first DNA sequence and which has up to 30% base mismatches with said first DNA sequence, and (ii) having a defective enzymatic mismatch repair system which is made defective by genetic or physiological manipulation, to form diploids,

culturing the mixture under conditions to effect meiotic recombination *in vivo* of said partially homologous first and second DNA sequences to make eukaryotic cells of said hybrid eukaryotic specie, and

recovering eukaryotic cells of said hybrid eukaryotic specie.

Kindly add the following new claims.

23. A process of making eukaryotic cells of a hybrid eukaryotic specie, said process comprising

genetically or physiologically manipulating eukaryotic cells to render defective the enzymatic mismatch repair system of said eukaryotic cells, said eukaryotic cells comprising partially homologous DNA sequences having up to 30% of base mismatches, and

culturing said manipulated eukaryotic cells under conditions to effect meiotic recombination *in vivo* of said partially homologous DNA sequences of said eukaryotic cells to thereby make eukaryotic cells of said hybrid eukaryotic specie, and

recovering eukaryotic cells of said hybrid eukaryotic specie.

24. A process of obtaining hybrid DNA sequences comprising

making eukaryotic cells of a hybrid eukaryotic specie according to the process of claim 23, and

isolating hybrid DNA sequences of said eukaryotic cells of said hybrid eukaryotic specie.

25. The process according to claim 24, wherein said hybrid DNA sequences comprise a gene.

26. A process of obtaining proteins encoded by hybrid DNA sequences comprising

obtaining hybrid DNA sequences according to the process of claim 24, and

expressing proteins encoded by said hybrid DNA sequences.

27. The process according to claim 26, wherein said hybrid DNA sequences comprise a gene.

28. The process according to claim 23, wherein said eukaryotic cells are derived from unicellular organisms.

29. The process according to claim 28, wherein the unicellular organisms are yeasts.

30. The process according to claim 23, wherein said enzymatic mismatch repair system of said eukaryotic cells are rendered defective by genetically or physiologically manipulating said eukaryotic cells to delete or make defective at least one eukaryotic homologue of *mutS* protein and/or at least one eukaryotic homologue of *mutL* protein.

31. The process according to claim 30, wherein said enzymatic mismatch repair system of said eukaryotic cells are rendered defective by genetically or physiologically manipulating said eukaryotic cells to delete or make defective at least one eukaryotic homologue of *mutS* protein.

32. The process according to claim 23, wherein said enzymatic mismatch repair system of said eukaryotic cells are rendered defective by genetically or physiologically manipulated said